Title: World Play Days

Brief Overview:

This unit is a week-long series of multicultural games and activities. The activities actively engage students in applying previously learned concepts in measurement, geometry, decimals, and statistics.

Link to Standards:

- **Problem Solving** Students will demonstrate their ability to solve problems in mathematics including problems with open ended answers, problems which are solved in a cooperative atmosphere, and problems which are solved with the use of technology.
- **Communication** Students will demonstrate their ability to communicate mathematically. They will read, write, and discuss mathematics with language, signs, symbols, and terms of the discipline.
- **Reasoning** Students will demonstrate their ability to reason mathematically. They will make predictions, use spatial sense to analyze placement of objects, and justify answers.
- **Connections** Students will demonstrate their ability to connect mathematics topics within the discipline and with other disciplines such as social studies, physical education, and art.
- **Number Relationships** Students will select appropriate operations to add, multiply, and divide whole numbers and decimals.
- **Geometry** Students will demonstrate their ability to apply geometric relationships and concepts such as perimeter and the identification of polygons.
- **Measurement** Students will demonstrate and apply concepts of measurement using metric units. They will estimate and measure distances in real world situations.
- **Statistics** Students will demonstrate their ability to collect, organize, and display data. They will interpret information obtained from their displays.
- **Probability** Given a situation, students will apply basic probability concepts such as predicting frequency of outcomes.

Grade/Level:

Grades 3-5

Duration/Length:

One week should be allotted for this learning unit. Class periods will each need to be at least one hour in duration.

Prerequisite Knowledge:

Students will need a basic understanding of the following concepts:

- Estimating, rounding, and place value
- Reading and constructing charts and graphs
- Measuring to the nearest centimeter
- Writing the probability of an outcome
- Identifying polygons
- Calculating perimeter
- Comparing and ordering decimals
- Basic problem solving and computational skills

Objectives:

Students will :

- design a pennant that depicts elements of a researched culture.
- calculate the perimeter of a triangle.
- multiply and divide amounts of money.
- follow directions to play four multicultural games.
- record, organize, and interpret data.
- estimate and measure distances to the nearest centimeter.
- record outcomes of an experiment as a fraction.
- calculate mean, median, and mode.
- predict the probability of an outcome.
- compare and order decimals.
- evaluate a situation and give appropriate support for their answer.
- use calculators as a computational tool.
- work cooperatively in groups.

Materials/Resources/Printed Materials:

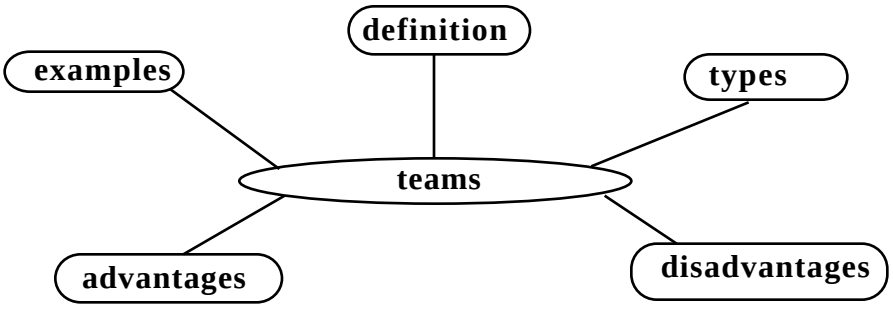
- Student resource sheets # 1-11
- Calculators (1 per student)
- Rulers (1 per student)
- Large sheets of graph paper
- Books on cultures of the world
- Local team or school pennants
- Poster board or bristol board
- Fabric (48 cm by 60 cm)
- Six bottles of fabric glue
- Six packets of trim
- 18 felt squares in a variety of colors
- Scissors
- Markers
- 30 corn cob darts *(See Day 2 Development/Procedures for information.)*
- Hoop *(See Day 2 Development/Procedures for information.)*
- Pencil stubs (1 per student)
- Chips (10 for each student)
- Stopwatch
- Student journals (1 per student)
- Atlases (1 per group)

- Blindfolds (2 for each group)
- Parent volunteers to assist with Day 2 and Day 4 activities

Development/Procedures:

Day 1:

- Have the students brainstorm a list of ideas associated with teams. Web the students' responses.



- Display pennants from local teams. Ask students to identify reasons teams or schools create pennants.

- Explain that students will be working in teams this week to play games from three cultures. Students will be making pennants to represent their teams.

- Divide the students into six teams.

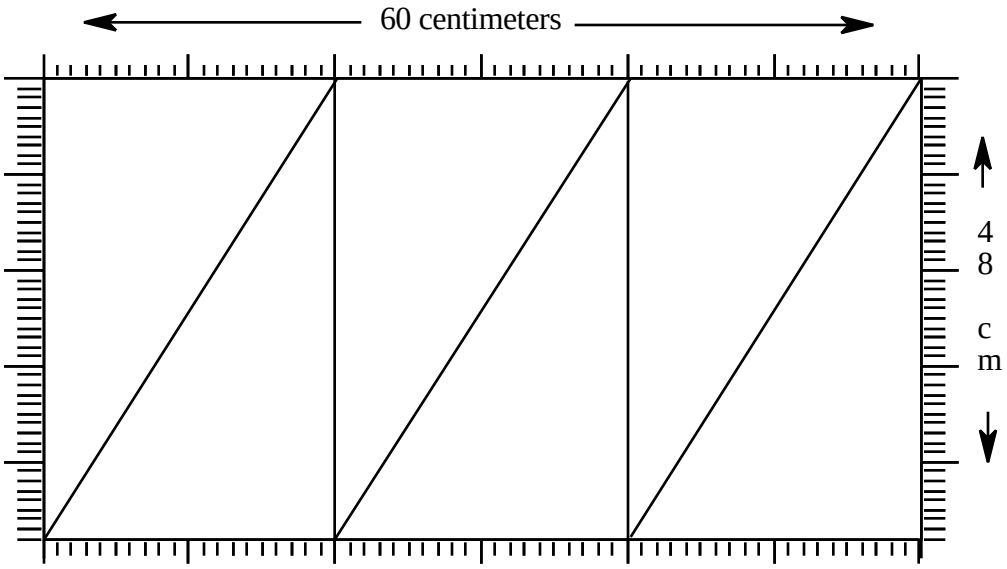
- Have each group select a culture from around the world. Distribute research books and have the students find symbols to represent their culture's heritage. Students will display their symbols on their pennant.

- Distribute Student Resource Sheets #1-3, and have the students work through the activities. (See suggested answers on following page.)

- Distribute materials and allow students to construct their pennants.

- Have the students reflect on their learning in journals.
  Optional prompts: "I enjoyed..."
  "Today I learned..."
  "I was surprised..."
  "I could use what I learned today in..." (application)

- Note: Suggested Activity 1B answers



The dimensions of the pennant are 60 cm by 48 cm by 52 cm.

The students will need 120 cm of trim.

- Note: Have calculators available for Activity 1C.

Day 2:

- **Teacher Preparation:** To make corn cob darts, put long feathers in one end of an ear of Indian corn. Make 5 darts for each group. The hoop for this game should not be more than two feet in diameter. Mark a line five to ten feet away from the target.

*****You may want to have parent volunteers assist in this activity.**

- Distribute a sheet of paper to each team of students. Have the students use the round table technique to write any ideas associated with Native Americans. Have the students continue to pass the paper around to record as many responses as possible during the two minute allotted time period. Students may not repeat other team members' responses.

- Introduce the Native American game using the information in Activity 2A. Ask the students to compare this game to an American game (darts). Discuss the idea that many cultures share similar games and other characteristics.

- Distribute Student Resource Sheets #4-7, and have the students work through the activities.

- For Activity 2D, review measures of central tendency: mean, median, and mode. Compile a class stem-and-leaf plot to display students' data.

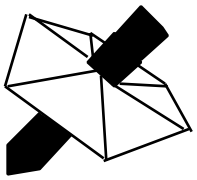
- Have the students reflect on their learning in journals.

Day 3:

- Use a concept attainment technique to have students predict the country whose game they will be playing. Place items that represent Mexico in the "yes" column and items that represent non-examples in the "no" column. Suggested items include taco, sombrero, maracas, outline map of Mexico, pesos, etc. Direct students to identify what all "yes" examples share in common. Ask the students to share information they know about Mexico.

- Distribute Student Resource Sheets #8-9, and have the students work through the activities.

- Provide the students with sturdy paper (such as poster board or bristol board) and pencil stubs for the construction of the topa. Model directions to assemble topa.



- Review the following directions for playing toma todo:
  1. Each person begins the game with 10 chips.
  2. Each player places 2 chips in the center pot.
  3. Take turns spinning the topa.
  4. When the topa comes to a stop, read the direction from the highest part of the topa. Follow that direction.
  5. "Todos Ponen" means that all players place two chips in the pot.
  6. When only one or two chips remain in the pot, everyone places an additional two chips in the pot.

  * If a player runs out of chips, he/she is out of the game. The winning player has the most chips at the end of the game.

- Have the students reflect on their learning in journals.

Day 4:

Teacher Note: The game the students will play should be played outdoors, in a gymnasium, or in a recreation room.

- Give student teams atlases and coordinates (longitude and latitude) of the mystery country from which this last game originated (Botswana). Have the students use the coordinates to locate the country.

- Toss a ball or bean bag to students as they generate responses to the question: "What do you know about Botswana/Africa?"

- Distribute Student Resource Sheets #10-11, and have students work on activities.

- Explain the directions to the game.
  1. All players in each group form a circle. At least 7 players are needed in each group.
  2. Choose a hunter and a springbok. Blindfold both and spin them around.

3. Have one player announce, "Let the hunt begin!"
4. The hunter moves quietly within the circle attempting to catch the springbok.
5. Other players may remain silent or make animal noises for distraction purposes. Other players may not touch the hunter or the springbok.
6. Rotate roles for hunter and springbok until everyone has had the opportunity to be the hunter.

* The teacher or parent volunteer will record the time it takes the hunter to catch the springbok. The time will need to be recorded in decimal form. For example, 2 minutes and 30 seconds = 2.50 minutes. Give students data to record on chart in Activity 4A.

- Have the students reflect on their learning in journals.

Day 5:

- Teachers may choose from the following to culminate the week's activities:

    - Compile class results from games. Have the students select the most appropriate means to organize and display the data.

    - Have the students write a friendly letter explaining the directions of their favorite game played during the week.

    - Arrange the students into two concentric circles. The students in the inside circle should face students in the outside circle. Have the students discuss their responses to the following questions with their partner:

        - What was your favorite activity from this week?
        - What did you learn this week?
        - Evaluate your group's successes.

        *** Instruct the students in the inside circle to move two spaces to the left after each question has been answered.**

    - Have the students write articles for their school or parent newsletter describing the events of the week. Generate criteria for a scoring tool to evaluate students' writing.

Performance Assessment:

Teachers may use observation, checklists, and anecdotal records to assess students as they complete the activities/tasks outlined in the learning unit. Teachers may also work with students to generate criteria to evaluate activities.

Extension/Follow Up:

- Have the students research games from other cultures to teach to their class or other classes.

- Have the students research a culture not previously studied and design an original game based on the elements of that culture.

- Hold a world fair that affords the students opportunities to sample foods, music, art, etc., from various cultures.

- Invite guest speakers, such as relatives of students or teachers in the building, to share information about their cultural heritage.

- Arrange for students to have international pen pals, via mail or the Internet, so that students can exchange information about their cultures.

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World Play Days

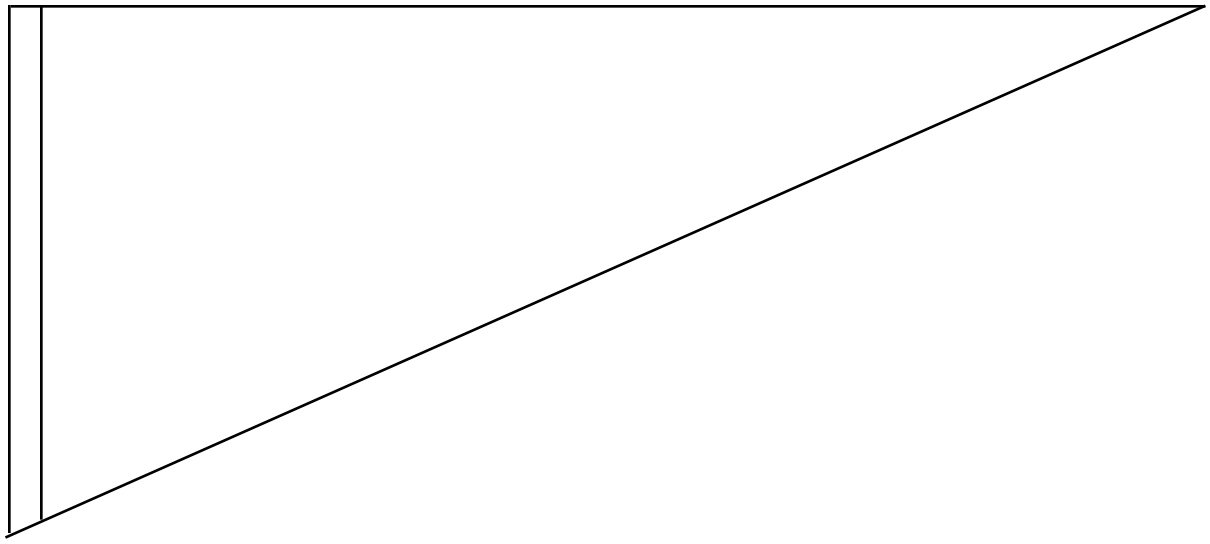
Your class is going to participate in multicultural play days. You will be on a team that will play games from around the world. You will use your knowledge of fractions, decimals, measuring, and statistics to complete the activities.

Good Luck!
Buena Suerte!
Buon Fortuna!

Activity 1A *Pennant Patterns*

Your team will design a pennant to display its team spirit. Select a culture to represent your team. Use resources to research your team's culture and construct your team's pennant to represent the symbols and unique elements of your culture.

Sketch your pennant in the space.



On the lines below, explain the meaning of your pennant's design and its symbols.

_____

_____

_____

_____

_____

_____

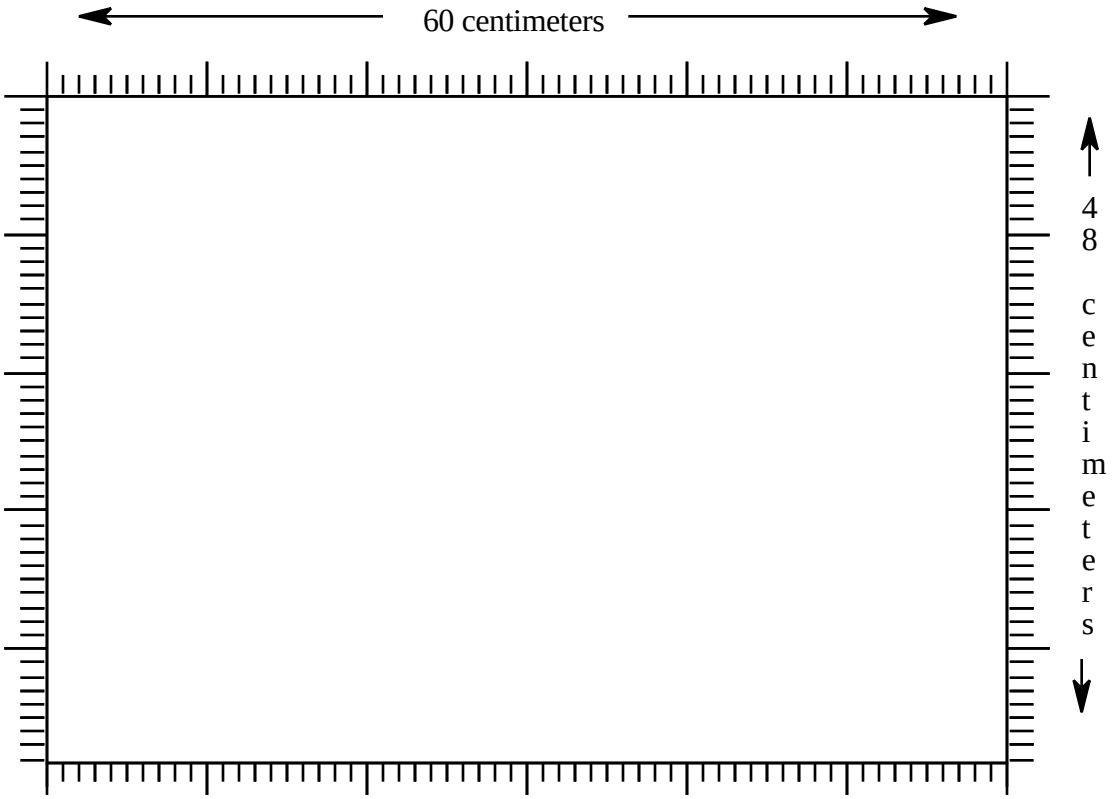
_____

_____

Activity 1B

One of the factors you must consider is the supplies needed to make the pennants. You will need fabric, glue, felt squares, and trim.

The fabric store sells pieces of fabric that are 60 centimeters wide and 48 centimeters long. The class needs to divide this fabric among its six teams. Use the diagram below to show how you will equally divide the fabric for the six triangular pennants so that no fabric will be wasted.



Your teacher will give you a piece of paper to make your group's pennant. Measure the pattern to the nearest centimeter.

Write the dimensions of your pennant. _____ by _____ by _____

You decide to put trim around the perimeter of your pennant. Use your pattern to measure and compute the amount of trim you will need.

We will need _____ of trim for our pennant.

Explain how you arrived at your answer.

_____

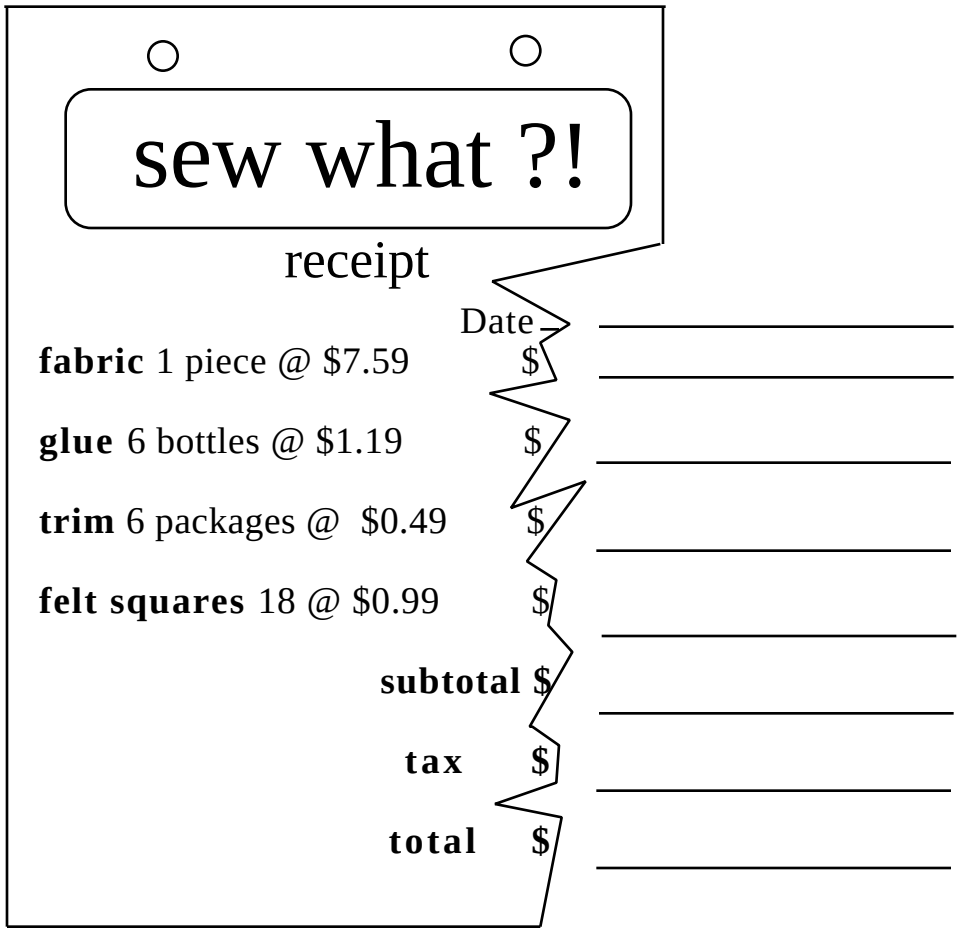
_____

_____

_____

Activity 1C

Below is a receipt from the local fabric store for the pennant supplies. Unfortunately, the receipt was torn when your teacher was taking it home. Fill in the amounts that should be on the missing piece.



Your teacher is interested in finding out about how much each pennant will cost to make. Write the approximate cost of each pennant. Round your answer to the nearest cent.

$ _____

Explain how you arrived at your answer.

_____

_____

_____

_____

_____

Activity 2A *"Corny" Games*

Native American children play games designed to sharpen their hunting skills. One of these games involves throwing a corn cob through a hoop to increase accuracy at hitting a target.

You will now have an opportunity to play this game. Each team member must stand behind the marked line. Each member will have five chances to throw the corn cob.

Display your team members' results. Use the space below to organize your data.

Activity 2B

In the chart below, rank your team members' performance.

Then record the outcome of each player's tosses as a fraction.

$$\frac{\text{numerator}}{\text{denominator}} = \frac{\text{number of tosses that passed through the hoop}}{\text{total number of tosses}}$$

place	name	outcome

Activity 2C

Native American children also needed practice at spear throwing in order to hunt.
You will now have an opportunity to play a game designed to sharpen your spearing skills.

1. Use the corn cob from the previous game as a spear.
2. Estimate the distance you predict you will throw the spear.
3. Record the team's predictions.
4. Stand behind the marked line and throw the spear one time.
5. Record the distance from the line to the corn cob to the nearest centimeter.
6. Record your team's data on the chart.

name	estimated distance	actual distance

Activity 2D

Your teacher will ask you for the data you have recorded from activity 2 C to compile a class stem and leaf plot.

Calculate the mean, median, and mode of the class data.

mean - the average of the numbers

To find the **mean**, add all the numbers (actual distances) and divide by the number of addends (number of participating classmates).

mode - the number occurring most often in the data

median - the middle number

To find the **median**, list all numbers in sequential order. Continue to cross off the greatest and least number in your list until you arrive at a middle number.

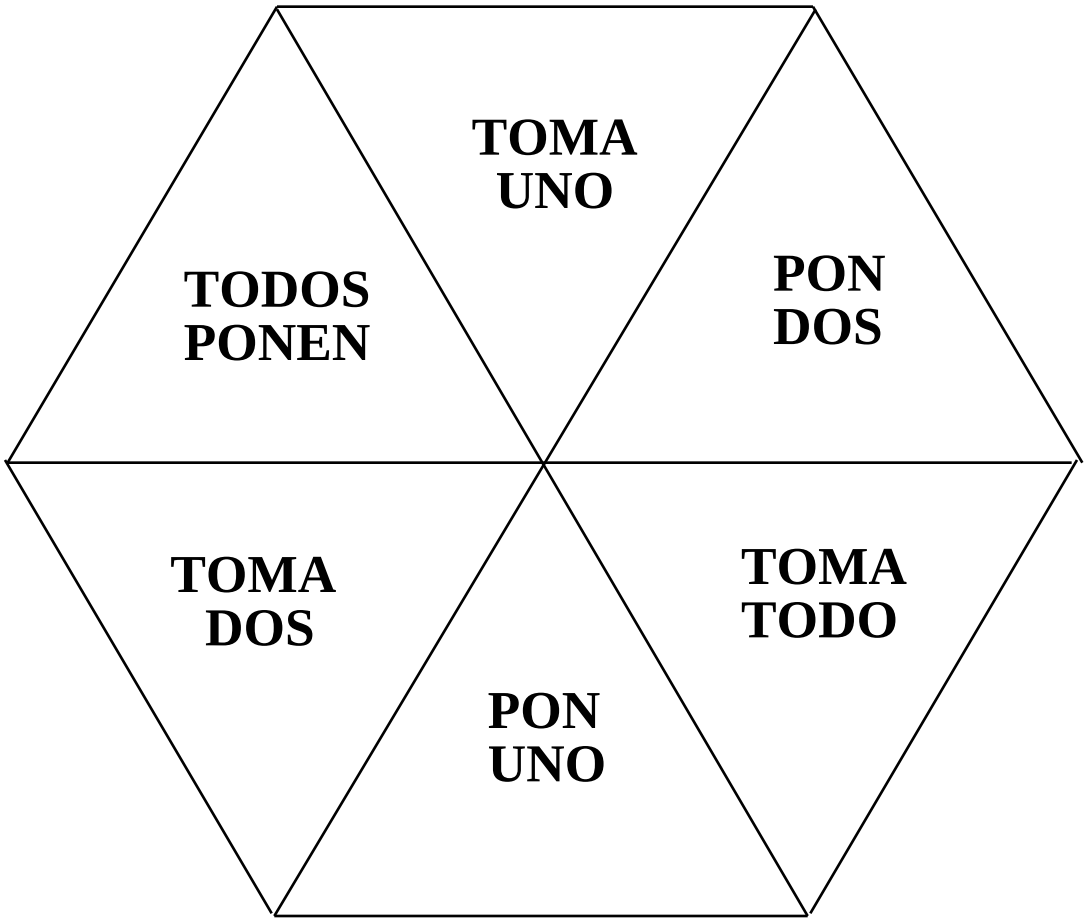
mean = _____

median = _____

mode = _____

Activity 3A *A Mexican Game of Chance*

Today, we will play a game from Mexico called "Toma Todo". In this game, you will use a top called a *topa.*



Study the topa. List the names and number of polygons you see in the design.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Activity 3B

Directions to assemble topa

1. Cut out the topa.
2. Glue it onto a piece of sturdy paper.
3. Poke a hole through the center of your topa with a pencil stub. The pencil stub will serve as your spinner's axis.

Your teacher will give you directions to play the game.

Before you begin, determine the probability of the topa landing on each of the following outcomes:

toma dos _____

todos ponen _____

toma tres _____

a space marked "toma" _____

a space marked "pon" or "ponen" _____

a space marked "toma" or "pon"/"ponen" _____

Use the following chart to assist you with your Spanish as you play the game.

Spanish	English
toma uno	take one
toma dos	take two
toma todo	take all
pon uno	put one
pon dos	put two
todos ponen	put all

Activity 4A *A Hunting Game from Botswana*

Today you will play a hunting game, adapted from a game that originated in Botswana, Africa. The game simulates an adult Bushman hunting a springbok, an animal like a gazelle. By playing this game, children learn the skills of concentration, patience, and coordination.

Your teacher will give you directions to play this game. Your teacher will also be recording the time it takes for the hunter to catch the springbok.

Copy the data your teacher recorded in the chart below.

game	time
1	
2	
3	
4	
5	
6	
7	
8	

Activity 4B

Rank the game times from least to greatest in the chart below.

place	time
1 st	
2 nd	
3 rd	
4 th	
5 th	
6 th	
7 th	
8 th	